

THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for inducing stem cells to differentiate into neuronal cells comprising:

- a) culturing said stem cells with basic fibroblast growth factor;
- b) culturing the cells of step a) with fibroblast growth factor 8 and Sonic Hedgehog;
- c) culturing the cells of step b) with brain-derived neurotrophic factor; and
- d) co-culturing the cells of step c) with astrocytes;

wherein said cells are cultured according to steps a) through d) for at least seven days at each step.

2. (Previously Presented) The method of claim 1, wherein the co-culture of step d) is performed in the presence of a supplement comprising insulin, transferrin, selenite, putrescine and progesterone.

3. (Cancelled)

4. (Cancelled)

5. (Original) The method of claim 1, wherein the stem cells are mammalian stem cells.

6. (Original) The method of claim 1, wherein the stem cells are human stem cells.

7. (Previously Presented) The method of claim 1, wherein the stem cells are selected from the group consisting of neural stem cells, embryonic germ cells, embryonic stem cells, and cells that are not embryonic stem cells, embryonic germ cells, or germ cells, and can differentiate into at least one cell type of each of the endodermal, ectodermal, and mesodermal embryonic lineages.

8. (Previously Presented) The method of claim 1, wherein the stem cells are not embryonic germ cells, embryonic stem cells or germ cells, and can differentiate into at least one cell type of each of the endodermal, ectodermal, and mesodermal embryonic lineages.

9. (Original) The method of claim 1, wherein the stem cells are isolated from bone marrow, placenta, muscle, brain, spinal cord, blood, and skin.

10. (Original) The method of claim 1, wherein the stem cells are isolated from bone marrow.

11. (Original) The method of claim 1, wherein said neuronal cells are selected from the group consisting of dopaminergic neurons, serotonergic neurons, GABA-ergic neurons and combinations thereof.

12. (Withdrawn) A neuronal cell produced by the method of claim 1.

13. (Currently Amended) A method for inducing cells to differentiate into neuronal cells comprising co-culturing the cells with astrocytes, said cells having gone through the steps of:

- a) culturing stem cells with basic fibroblast growth factor;
- b) culturing the cells of step a) with fibroblast growth factor 8 and Sonic Hedgehog; and
- c) culturing the cells of step b) with brain-derived neurotrophic factor₂

wherein said cells are cultured according to steps a) through c) for at least seven days at each step.